



SILVER LEVEL CHALLENGE #3



Calculators may NOT be used.

Name _____

1. 30 Dave has d pieces of candy and Ramon has r pieces of candy. Dave gives Ramon $\frac{1}{3}$ of his candy. They then each have 20 pieces of candy. What is the value of d ?

When Dave gives Ramon $\frac{1}{3}$ of his candy, he is left with $\frac{2}{3}$ of his candy. Therefore $(\frac{2}{3})d = 20$. Solving for d , we can multiply both sides of the equation by the reciprocal of $\frac{2}{3}$ and get $d = 20(\frac{3}{2}) = 30$.

2. 90 blops If 6 blops = 1 glop and 5 glops = 7 flops, how many blops are equal to 21 flops?

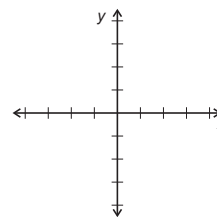


Let's work backwards. Seeing 5 glops = 7 flops and knowing we want 21 flops, we can multiply both sides of the equation by 3. This gives us 15 glops = 21 flops. Using the equation 6 blops = 1 glop, we can multiply both sides of the equation by 15. This gives us 90 blops = 15 glops. Since both are equal to 15 glops, we know 90 blops = 21 flops.

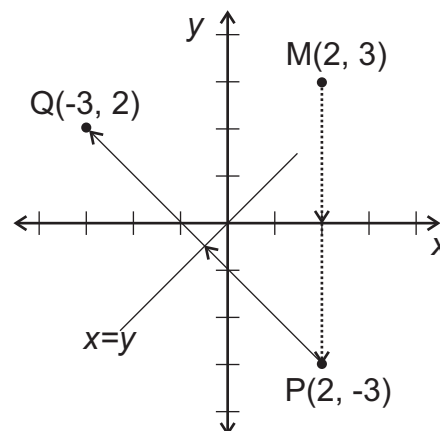
3. \$ 4074 At the Marian County Antique Show, 202 tickets were sold on Friday, 357 were sold on Saturday and 408 were sold Sunday. How many dollars were collected if the Friday tickets cost \$3 each, the Saturday tickets cost \$4 each and the Sunday tickets cost \$5 each?

The ticket sales on Friday totaled $(202 \text{ tickets})(\$3 \text{ per ticket}) = \606 . The ticket sales on Saturday totaled $(357 \text{ tickets})(\$4 \text{ per ticket}) = \1428 . The ticket sales on Sunday totaled $(408 \text{ tickets})(\$5 \text{ per ticket}) = \2040 . The total collected over the three days is $\$606 + \$1428 + \$2040 = \4074 .

4. **-3** Point M(2, 3) is reflected about the x-axis to point P. Then P is reflected about the line $y = x$ to a point Q. What is the x-coordinate of Q?



When point M(2, 3) is reflected about the x-axis to point P, we can determine that P is located at (2, -3). When point P is reflected about the line $y = x$ to a point Q, the coordinates of point Q can be found by switching the coordinates of point P. Point Q is then at (-3, 2), so the x-coordinate is **-3**.



5. **8/9** Bob and Meena play a two-person game which is won by the first person to accumulate 10 points. At each turn Bob gains a point with probability of $1/3$. If he doesn't get a point, then Meena gets a point. Meena is now ahead 9 to 8. What is the probability that Meena will win? Express your answer as a common fraction.



We can first determine the ways in which Meena can win, and then we can add the probability of each of those ways occurring. Meena could win the next point, thus winning the game 10-8. The probability of her winning the next point is $2/3$. Meena could lose the next point and then win the second point, thus winning the game 10-9. The probability of this is $(1/3)(2/3) = 2/9$. The total probability of one of these two scenarios happening is $2/3 + 2/9 = \mathbf{8/9}$.